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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,257	09/19/2003	Robert J. Magyar	920047-94539	1147

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Howard B. Rockman
BARNES & THORNBURG
P.O. Box 2786
Chicago, IL 60690-2786

EXAMINER

NGUYEN, DANNY

ART UNIT	PAPER NUMBER
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2836

MAIL DATE	DELIVERY MODE
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06/28/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/667,257

Applicant(s)

MAGYAR ET AL.

Examiner

Danny Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,4-12,14,15 and 18-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,4-12,14,15,18-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 4/13/2007 with respect to the amended claims 2, 14, have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claim 14 is objected to because of the following informalities: "the phrase :the method of controlling the operation..." should be "a method of controlling an operation" Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 is indefinite because it depends on the cancelled claim 3.

Claim 5, the term "said predetermined position" unclear.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 27, 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Moran (USPN 6,757,149). Moran discloses an apparatus (figures 3, 5, 7) comprises a valve control stage (62) coupled to a coil of a solenoid (22) of a valve (20), a current sensing stage (such as a sensing resistor in circuit 62) coupled to the valve, current in the valve is monitored by the current sensing stage which send indicative to the control stage (col. 4, lines 1-26), a first impulse current (current pulse 30 in figure 3), a first low current (current pulse 34), a second impulse current (52), a second low current (42) supplied by the control stage the valve, the first impulse current sets the valve in motion toward an open stage during a first time (T1-T2) (col. 2, lines 60-67), the first low current stabilizes the valve in the open state during a second time (T2-T3), the first low current having a lower amplitude (36) than an amplitude (32) of the first impulse current, the second impulse current (such as a second impulse current 52)) which is polarized oppositely to the first impulse current and delivered by the valve control apparatus to set the valve in motion toward a closed state during a third time phase (T0-T2) (col. 3, lines 12-56), the second low current (42) which is polarized oppositely to the first low current and delivered by the valve control apparatus to stabilize the valve in the closed state during a fourth time (T2-T3), the second low current having a lower amplitude than an amplitude of the second impulse current.

Claim Rejections - 35 USC § 103

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 4-12, 14, 18-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moran (USPN 6,757,149) in view of Estelle et al (USPN 6,380,861).

Regarding claims 2, 4, 6, 7, 14, 19, 20, Moran discloses a method and a valve control circuit (figures 3, 5, 7) comprises a process control apparatus (such as a controller 44, 54) generating a plurality of data signals (46, 56), each signal corresponding to an operating parameter of the valve (e.g. col. 3, lines 49-63), a valve control apparatus (e.g. valve controller 62) transmitting a voltage (such as a voltage waveform generated from 62) to the valve to the operation of the valve (20), the valve control apparatus receiving at least one operating data signal generated by the process control apparatus, the valve having a current flow created therein upon receiving voltage from the valve control apparatus, a current sensing apparatus (current sensing resistor 68) senses the flow of current in the valve (col. 4, lines 1-6), the current sensing apparatus creating a signal (feedback signal) responsive to the current flow in the valve, the signal created by the current sensing apparatus applied to the valve control apparatus (see figure 2), the valve control controls the valve response to the signal from the current sensor, a first impulse current (current pulse 30 in figure 3), which is one of a number of regulated current intervals of the flow of current in the valve, delivered by the valve control apparatus to set the valve in motion toward an open state during a first

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time phase (T1-T2) (col. 2, lines 60-67), a first low current (current pulse 34) which is one of a number of regulated current intervals of the flow of current in the valve, delivered by the valve control apparatus to stabilize the valve in the open state during a second time (T2-T3), the first low current having a lower amplitude (36) than an amplitude (32) of the first impulse current, a second impulse current (such as a second impulse current 52)), which is one of a number of regulated current intervals of the flow of current in the valve, and which is polarized oppositely to the first impulse current and delivered by the valve control apparatus to set the valve in motion toward a closed state during a third time phase (T0-T2) (col. 3, lines 12-56), a second low current (42) which is one of a number of regulated current intervals of the flow of current in the valve, and which is polarized oppositely to the first low current and delivered by the valve control apparatus to stabilize the valve in the closed state during a fourth time (T2-T3), the second low current having a lower amplitude than an amplitude of the second impulse current. Moran does not disclose a zero current for idle interval as claimed. Estelle discloses a device for control a valve (figures 1 and 2A, 3) discloses a teaching of providing a zero current (Toff, see figure 2A) for idle interval. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the valve control circuit of Moran to incorporate the teaching of providing a zero current for an idle interval as disclosed by Estelle in order to maintain the operating of the coil at a constant temperature.

Regarding claim 5, Moran discloses the second predetermined position of the valve is an open (34).

Regarding claims 8-10, Moran discloses upon the detection of a predetermined current on the valve, reduces the current applied to the valve (col. 4, lines 1-26).

Regarding claims 11, 12, 18, Moran discloses the valve includes a coil (22), the current sensing apparatus includes a resistor in series with the coil (the sensing resistor includes in the circuit 62, see figure 5) and adjusting the current responsive to the feedback signal (col. 4, lines 1-26).

Regarding claims 21-24, Moran discloses an apparatus comprises a valve control stage (62) coupled to a coil (22), a current sensing stage (current sensing resistor 68) senses the flow of current in the valve (col. 4, lines 1-6), the current sensing apparatus creating a signal (feedback signal) responsive to the current flow in the valve, the signal created by the current sensing stage applied to the valve control stage (see figure 2), a first impulse current (current pulse 30 in figure 3), a first low current (current pulse 34) supplied by the control stage the valve, the first impulse current sets the valve in motion toward an open stage during a first time (T1-T2) (col. 2, lines 60-67), the first low current stabilizes the valve in the open state during a second time (T2-T3), the first low current having a lower amplitude (36) than an amplitude (32) of the first impulse current. Moran does not disclose a zero current for idle interval as claimed. Estelle discloses a dampening device (figures 1 and 2A, 3) discloses a teaching of providing a zero current (Toff, see figure 2A) for idle interval. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the valve control circuit of Moran to incorporate the teaching of providing a zero current for an idle

interval as disclosed by Estelle in order to maintain the operating of the coil at a constant temperature.

Regarding claims 25, 26, Moran discloses an apparatus comprises a valve control stage (62) coupled to a coil (22), a current sensing stage (current sensing resistor 68) senses the flow of current in the valve (col. 4, lines 1-6), the current sensing apparatus creating a signal (feedback signal) responsive to the current flow in the valve, the signal created by the current sensing stage applied to the valve control stage (see figure 2), a first impulse current (current pulse 30 in figure 3), a first low current (current pulse 34), a second impulse current (52), a second low current (42) supplied by the control stage the valve, the first impulse current sets the valve in motion toward an open stage during a first time (T1-T2) (col. 2, lines 60-67), the first low current stabilizes the valve in the open state during a second time (T2-T3), the first low current having a lower amplitude (36) than an amplitude (32) of the first impulse current. Moran does not disclose a zero current for idle interval as claimed. Estelle discloses a dampening device (figures 1 and 2A, 3) discloses a teaching of providing a zero current (Toff, see figure 2A) for idle interval. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the valve control circuit of Moran to incorporate the teaching of providing a zero current for an idle interval as disclosed by Estelle in order to maintain the operating of the coil at a constant temperature.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Danny Nguyen whose telephone number is 571-272-2054. The examiner can normally be reached on 8:00-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MICHAEL SHERRY can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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6/18/2007

A handwritten signature in black ink, appearing to read 'M. Sherry', followed by the date '6/22/07' written in a similar cursive style.

MICHAEL SHERRY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800